

SUPPORT FOR THE AMENDMENT

Support for the amendments to Claims 1 and 2 is found in Figure 2 and on page 11, lines 12-15 of the specification, page 7, lines 1-5, and on page 6, lines 24-28 of the specification. No new matter would be added to this application by entry of this amendment.

Upon entry of this amendment, Claims 1-11 will now be active in this application, with claims 1-5 and 9-11 being under active consideration.

REQUEST FOR RECONSIDERATION

The present invention is directed to a bulky sheet.

Applicants would like to thank Examiner Chevalier for the helpful and courteous discussion held with their U.S. representative on July 2, 2003. At that time, Applicants' U.S. representative argued that an entangled fiber aggregate having a very low level of fiber migration and projections having a corresponding depression on an opposite side was nowhere disclosed or suggested in the cited prior art. The following is intended to expand upon the discussion with the Examiner.

Disposable cleaning sheets based on entangled fibers have recently become popular for household cleaning. Dirt and debris may become entrapped within entangled fibers providing for the removal of dust, rather than simply the redistribution thereof.

The desire to improve the feel and performance of such bulky sheets has resulted in the introduction of a patterned surface thereon. During such patterning, it is sometimes the case that the pattern is formed unevenly or a desired thickness is not obtained. Accordingly, improved bulky sheets are sought.

The present invention addresses the problem by providing for a bulky sheet comprised of an entangled fiber aggregate having projections and depressions wherein a distribution of the fibers caused by migration of fibers in the projections toward the depressions, is at a very

low level and the projections and depressions retain their shape by themselves. Applicants have discovered that such a bulky sheet may be obtained by water needling of a fiber web followed by forming projections and depressions by rearrangement of the constituting fibers by water needling and by the multiple bending of the entangled fibers along the thickness direction. Applicants have discovered that such a sheet feels soft and agreeable to the touch and is capable of picking up dirt and debris from uneven surfaces. Such a bulky sheet is nowhere disclosed or suggested in the cited prior art of record.

The rejection of Claim 1 under 35 U.S.C. § 102(b) over Suzuki et al. (U.S. 4,718,152) is respectfully traversed.

Suzuki et al. describes a patterned non-woven fabric obtained by reorienting fibers of a fibrous web with water streams on a support consisting of a roll or endless belt having a relief pattern (column 2, lines 26-45). The roll having a surface of a relief pattern is a **water-impermeable roll** (column 3, lines 20-21). The result is a relief pattern having high density areas and low density areas (column 2, lines 15-17). Accordingly, by using a patterned surface which is water-impermeable, a patterned non-woven fabric having high density areas and low density areas, resulting from reorienting fibers, is obtained.

In contrast, the present invention is directed to a bulky sheet in which the distribution of fibers caused by migration in the projections toward the depressions is at a very low level. Such a low level of distribution may be obtained by patterning the entangled fiber web onto a patterned surface which **permits water to flow through**, such as a patterned surface which is made up of wire (page 12, lines 7-9 of the specification). Accordingly, the cited reference fails to disclose or suggest a bulky sheet in which the distribution of constituting fibers caused by migration of fibers in projection toward the depressions is at a very low level. Applicants note that the claims have been amended to recite that in the bulky sheet, a distribution of constituting fibers caused by migrating of the fibers in the projections toward

the depressions, is at a very low level. Since such a claim limitation is neither disclosed nor suggested in the cited reference, the claimed invention is clearly neither anticipated nor made obvious by this reference and accordingly withdrawal of the rejection under 35 U.S.C.

§ 102(b) is respectfully requested.

The rejection of Claims 1 and 2 under 35 U.S.C. § 102(b) over Shizuno et al. (U.S. 5,525,397) is respectfully traversed.

Shizuno et al. describes a bulky sheet of entangled fibers, but fails to disclose any particular patterning method. The reference describes different shapes being provided for by the shape of the perforation made through the network sheet (column 3, lines 32-38).

However, the reference does not describe a patterning to form projections and depressions.

Figures 1 and 2 illustrate embodiments bearing a single and two non-woven fiber aggregates (column 3, lines 6-22), wherein the illustration appears to indicate raised and not raised portions. However, in Figure 2, the embodiment depicting two non-woven fiber aggregates, the raised portion on one side of the bulky sheet has a **corresponding raised side** on the opposite face of the sheet. Moreover, the portion which is not raised has a **corresponding portion which is not raised** on the opposite side of the sheet.

In contrast, the bulky sheet of the present invention may be prepared with projections and depressions by water needling onto a patterned surface, the result being that **the projections have a corresponding depression** on an opposite side of the bulky sheet. Such a feature is illustrated in Figure 2, where a projection on one face of the bulky sheet has a corresponding depression on the opposite side of the bulky sheet. Applicants note that the claims have been amended to recite the presence of corresponding projections and depressions. As Shizuno fails to disclose or suggest such an arrangement of projections having corresponding depressions, the cited reference fails to disclose or suggest this claim limitation and the accordingly the claimed invention is clearly neither anticipated nor obvious

from the references, and accordingly withdrawal of the rejection under 35 U.S.C. § 102(b) is respectfully requested.

The rejection of Claims 1 and 5 under 35 U.S.C. § 102(b) over Murase et al. and of Claims 1 and 2 under 35 U.S.C. § 102(b) over Takeuchi et al. (U.S. 5,958,555) are respectfully traversed.

None of the cited references disclose or suggest entangled fiber aggregates.

Murase et al. describes a bulky fiber in which filaments are bound by applying heat, a process which does not produce any substantial 3-D entanglement (column 2, lines 40-54). Takeuchi et al. describes a disposable sheet used by wet paper manufacturing, which has been subject to a crinkling process (column 2, lines 1-4). As such, neither reference discloses or suggests a bulk sheet comprised of entangled fibers. Since the cited references fails to disclose or suggest the claimed feature of an entangle fiber aggregate, the present invention is clearly neither anticipated nor made obvious by these references, and accordingly withdrawal of the rejections under 35 U.S.C. § 102(b) is respectfully requested.

Claims 3-5 and 9-10 have been rejected as obvious over Shizuno et al. alone and in combination with Takeuchi et al. and/or Murase et al.

As Shizuno fails to disclose or suggest the claimed feature of projections having a corresponding depression on an opposite side of the bulky sheet and the secondary references fail to disclose or suggest such a feature, the claimed invention is clearly not rendered obvious by Shizuno et al., alone or in combination with the secondary references. In view of these deficiencies, withdrawal of the rejections under 35 U.S.C. § 103(a) is respectfully requested.

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Reply to Office Action of April 4, 2003

Applicants submit this application is now in condition for allowance, and early notification of such action is earnestly solicited.

Respectfully submitted,

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